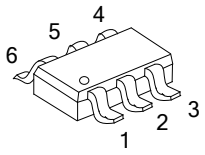
LOW ON-RESISTANCE WIDE BANDWIDTH DUAL 1:1 ANALOG SWITCH OF LEVEL SHIFTER



SOT-26

■ DESCRIPTION

The UTC **UMX2110** is a Dual 1:1 analog switch of level shifter designed with advanced CMOS technology. The wide bandwidth of this level shifter allows USB2.0 signals to completely pass with minimum distortion when V_{DD} at 5V. It is bidirectional and designed for low bit-to-bit skew, high channel-to-channel noise isolation.

The UTC **UMX2110** offers a high-performance, low-cost solution.

■ FEATURES

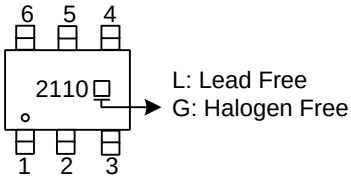
* V_{DD} Supply : 4.4V ~ 5.5V
* Low On-Resistance : 5Ω @ V_{DD} = 4.4V

■ ORDERING INFORMATION

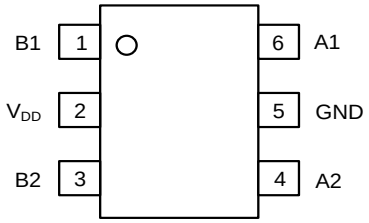
Ordering Number		Package	Packing
Lead Free	Halogen Free		
UMX2110L-AG6-R	UMX2110G-AG6-R	SOT-26	Tape Reel

UMX2110G-AG6-R (1)Packing Type (2)Package Type (3)Green Package	(1) R: Tape Reel (2) AG6: SOT-26 (3) G: Halogen Free and Lead Free, L: Lead Free

■ MARKING



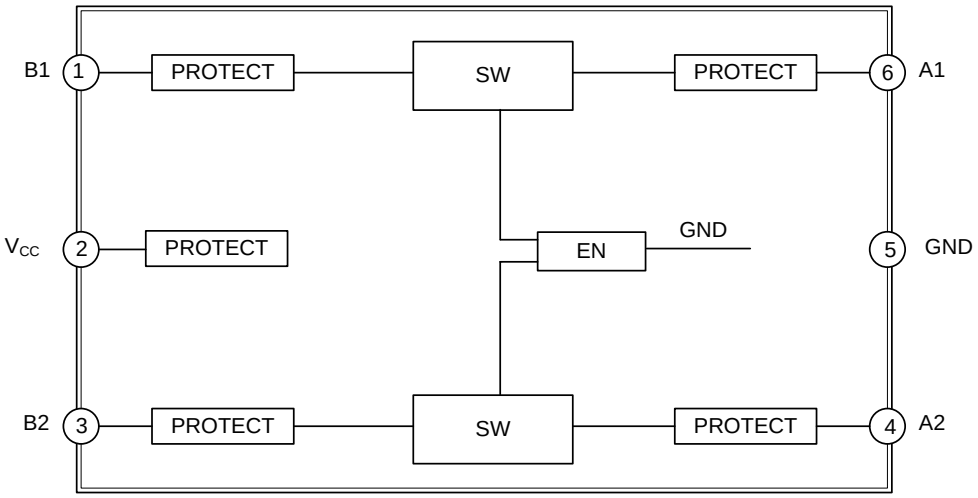
■ PIN CONFIGURATION



■ PIN DESCRIPTION

PIN NO.	PIN NAME	DESCRIPTION
1, 3	B1, B2	Data Bus B
2	V_{DD}	Power
4, 6	A2, A1	Data Bus A
5	GND	Ground

■ BLOCK DIAGRAM



■ ABSOLUTE MAXIMUM RATING (T_A=25°C, unless otherwise specified)

PARAMETER	SYMBOL	RATINGS	UNIT
DC Input Voltage	V_{DD}	-0.5V ~ +7.0V	V
DC Output Current		120	mA
Supply Voltage to Ground Potentia		-0.5 ~ +7.0	V
Power Dissipation	P_D	0.5	W
Operating Temperature	T_{OPR}	-40 ~ +85	°C
Storage Temperature	T_{STG}	-65 ~ +150	°C

Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.

■ DC ELECTRICAL CHARACTERISTICS

(V_{IN}=5V, T_A=25°C unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP (Note 1)	MAX	UNIT
Supply Voltage	V_{DD}		4.4	5	5.5	V
Power Supply Current	I_S	V_{DD}=5.5V			1	μA
Analog Signal Range	V_{SWITCH}		0		V_{DD}-V_{TH} (Note 2)	V
I/O Leakage Current	I_{LK}	V_{DD}=5V, V_{IN}=0~5V			±1	μA
ON-Resistane	R_{ON}	V_{DD}=4.4V, V_{IN}=0V, I_{ON}=-56mA		4		Ω
		V_{DD}=4.4V, V_{IN}=2.4V, I_{ON}=-56mA		7		Ω
Match Between Channels	Δ R_{ON}	V_{DD}=4.4V, V_{IN}=0V, I_{ON}=-56mA		0.4		Ω
Ron Flatness	R_{FLAT}	V_{DD}=4.4V, V_{IN}=0V, I_{ON}=-56mA		3		Ω

Notes: 1. T_A=25°C ambient and maximum loading unless otherwise specified.
2. V_{TH} is the threshold voltage of MOS device.

■ SWITCHING CHARACTERISTICS

(V_{DD}=3.3V, T_A=-40°C ~ +85°C unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP (Note 1)	MAX	UNIT
Propagation Delay	t_{PD}	R_L=50Ω,C_L=10pF(Note 2), see Fig. 1		0.25		ns
Capacitance, Switch ON	$C_{(ON)}$	V_{IN}=0V, f=1MHz		3.7		pF
-3dB Bandwidth	BW	See Fig. 2		700		MHz
Crosstalk	X_{TALK}	f=10MHz		-83		dB

Notes: 1. T_A=25°C ambient and maximum loading unless otherwise specified.
2. C_L includes probe and jig capacitance.

■ TEST CIRCUIT AND WAVEFORMS

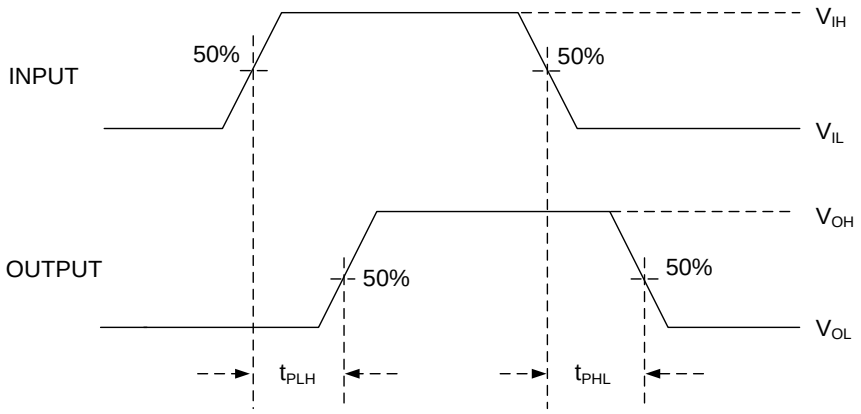


Fig.1 PROPAGATION DELAY TIMES

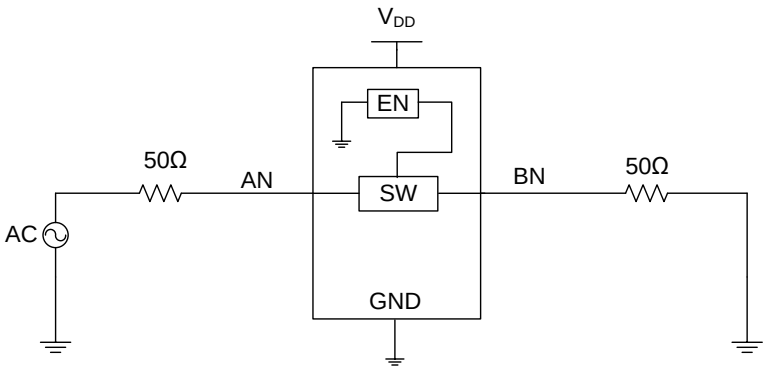


Fig.2 BANDWIDTH

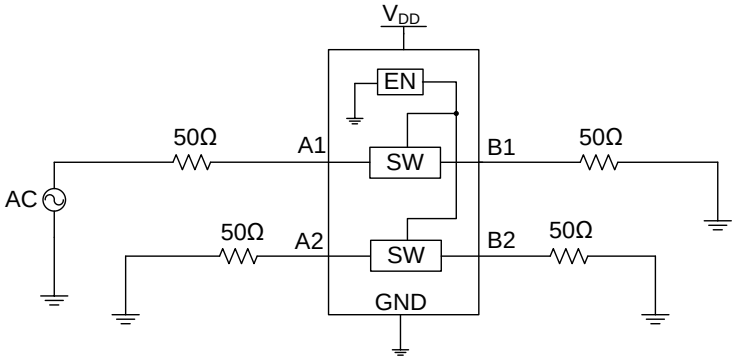


Fig.3 CROSSTALK

■ TYPICAL APPLICATION CIRCUIT